WRZ Series Wireless Room Sensors Catalog Page

Description

Use the WRZ Series Wireless Room Sensors to sense room or zone temperature and transmit wireless temperature control data. Some models also sense and transmit relative humidity (RH).

Several models include an onboard passive infrared (PIR) occupancy sensor that detects motion to determine if a space is occupied. Use this feature to maximize up to 30% energy savings in high-energy usage environments such as schools, dormitories, offices, and hospitals, by adjusting the temperature of the space based on the occupancy status. In addition, use the PIR occupancy sensor to facilitate trends of floor space usage in these environments.

In a mesh application, the WRZ sensor is compatible with the ZFR18xx Wireless Field Bus Systems (ZFR181x, ZFR182x, ZFR183x). See Table 1. Depending on the system controller, the transmitter communicates through the ZFR18xx Router (ZFR or ZFR Pro Series Router). Up to nine WRZ Series Sensors can associate with a single controller.

In wired field bus applications, the sensors communicate with a WRZ-7860 Wireless Receiver. The WRZ-7860 Receiver transfers data to the controller through the Sensor Actuator (SA) communication bus. In an application, one WRZ Series Sensor reports to one WRZ-7860 Receiver. Up to five WRZ Series Sensors can associate with a single WRZ-7860 Receiver for multi-sensor averaging or high and low temperature selection.

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The WRZ Series Wireless Room Sensors include models with either a temperature setpoint dial or the setpoint adjustment buttons and LCD that enables occupants to view the zone temperature, RH, and view and adjust the zone temperature setpoint. Some temperature and humidity models include a % RH button to toggle between temperature and RH on the display. These models also have the capability to set the preferred default display to either temperature or RH. Some models also include a °F/°C button, which provides a choice between degrees Fahrenheit (F) and degrees Celsius (C).

Models are available with or without an LCD. Depending on the sensor model, the WRZ Series Sensor can transmit sensed temperature, setpoint temperature, sensed humidity, occupancy status, and low battery conditions to an associated router or receiver. Use the WRZ Series Sensors for indoor, intra-building applications only.

The WRZ Series Sensors use direct-sequence, spread-spectrum RF technology, and operate on the 2.4 GHz Industrial, Scientific, and Medical (ISM) band. The receiver meets the IEEE 802.15.4 standard for low-power, low-duty cycle RF transmitting systems.

Refer to the *WRZ Series Wireless Room Sensors Product Bulletin (LIT-12011653)* for important product application information.

Features and benefits

- Wireless RF design
- Integral wireless signal strength testing built into the sensor
- Easy installation and relocation
- Easily applicable data types
- Simple, field-adjustable DIP switches
- Wireless signal strength and low battery condition mapping
- Optional, battery-powered ZFR-HPSST-0 Wireless Sensing System Tool
- High resistance to RF interference from other radio devices or RF noise sources
- Onboard PIR Occupancy Sensor available on some models
- User-selectable default display for humidity models
- Display models
- Three temperature setpoint range options
- Blinking red LED light to indicate firmware version

Version compatibility

Table 1: WRZ compatibility

Wireless Field Bus System	Compatibility	
	-0 models	-2 models
WRZ-7860	x	x
ZFR181x	x	x
ZFR182x	x	x
ZFR183x		x

Repair information

If the WRZ Wireless Room Sensor fails to operate within its specifications, replace the unit. For a replacement sensor, contact the nearest Johnson Controls® representative.

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Ordering information

To order a WRZ Series Wireless Room Sensor, contact the nearest Johnson Controls representative. Specify the preferred product code number from Table 2 and accessories from Table 3.

Table 2: Selection charts

Product code number	Description
WRZ-MHN0100-2	Wireless Room Temperature and Humidity Sensor with PIR occupancy sensor, battery level and signal strength LED, manual occupancy override button, without display, ZFR183x compatible
WRZ-MTJ0100-2	Wireless Room Temperature Sensor with PIR occupancy sensor, display, setpoint button adjustment for Warmer/Cooler (+/-) setpoint adjustment or scaled setpoint adjustment: 55°F to 85°F (13°C to 29°C), and manual occupancy override button, ZFR183x compatible
WRZ-RMT10K-2	Wireless Room Temperature Sensor for Remote 10K Temperature Probes, display, °F/°C button, and manual occupancy override button, ZFR183x compatible
WRZ-STR0000-2	Wireless Room Temperature Sensor with Remote 3K Refrigerator or Freezer Temperature Probe, display, °F/°C button, and manual occupancy override button, ZFR183x compatible
WRZ-THJ0000-2	Wireless Room Temperature or Humidity Sensor with display, setpoint adjustment buttons for Warmer/Cooler (+/-) setpoint adjustment or scaled setpoint adjustment: 55°F to 85°F (13°C to 29°C), °F/°C button, RH button, and manual occupancy override button, ZFR183x compatible
WRZ-THN0000-2	Wireless Room Temperature and Humidity Sensor with battery level or signal strength LED and manual occupancy override button, ZFR183x compatible
WRZ-TTJ0000-2	Wireless Room Temperature Sensor with display, setpoint adjustment buttons for Warmer/Cooler (+/-) setpoint adjustment or scaled setpoint adjustment: 55°F to 85°F (13°C to 29°C), °F/°C button, and manual occupancy override button, ZFR183x compatible
WRZ-TTK0000-2	Wireless Room Temperature Sensor with display, setpoint adjustment buttons for Warmer/Cooler (+/-) setpoint adjustment or scaled setpoint adjustment: 55°F to 85°F (13°C to 29°C), °F/°C button, fan speed control button, and manual occupancy override button, ZFR183x compatible
WRZ-TTP0000-2	Wireless Room Temperature Sensor with Warmer/Cooler (+/-) setpoint dial adjustment, battery level or signal strength LED, and manual occupancy override button, ZFR183x compatible
WRZ-TTR0000-2	Wireless Room Temperature Sensor with battery level or signal strength LED, manual occupancy override button, and no setpoint dial adjustment, ZFR183x compatible
WRZ-TTS0000-2	Wireless Room Temperature Sensor with setpoint dial adjustment scale: 55°F to 85°F (13°C to 29°C), battery level or signal strength LED, and manual occupancy override button, ZFR183x compatible
ZFR-HPSST-0	Wireless Sensing System Tool is a lightweight, portable, wireless transmitter/receiver designed to serve as an RF signal tester or site survey tool prior to installation of a ZFR18xx Series Wireless Field Bus System
T-4000-119	Allen-head adjustment tool: 1/16 in. (1.6 mm), 30 tools per bag

Note: All sensors with both a dial and a display can have either a W/C or a SCALE setpoint adjustment configuration. Sensors with a W/C configuration show the incremental temperature change from the previous setpoint value. Sensors with a SCALE configuration show the current setpoint value.

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Table 3: WRZ Series Sensor model comparison

Sensor type	Adjustment type	Sensor model	Temp	3% humidity	Display	°F/°C button	Fan control	RH button	Occupancy override button	PIR occupancy sensor	Setpoint adjustment[1]
Non-display temp.	No dial	WRZ-TTS0000-0	x						x		NO DIAL
		WRZ-TTS0000-2	x						x		NO DIAL
	Encoder dial	WRZ-TTR0000-0	x						x		DIAL, SCALED
		WRZ-TTR0000-2	x						x		DIAL, SCALED
	Potentiometer dial	WRZ-TTP0000-0	x	x					x		DIAL, W/C
		WRZ-TTP0000-2	x	x					x		DIAL, W/C
Display temp.	Encoder dial	WRZ-TTB0000-0	x		x	x			x		DIAL, CONFIG
	Buttons	WRZ-TTB0000-5	x		x	x			x		BUTTONS, CONFIG
	Encoder dial	WRZ-TTD0000-0	x		x	x	x		x		DIAL, CONFIG
	Buttons	WRZ-TTK0000-0	x		x	x	x		x		BUTTONS, CONFIG
		WRZ-TTK0000-2	x		x	x	x		x		BUTTONS, CONFIG
		WRZ-TTJ0000-0	x		x	x			x		BUTTONS, CONFIG
		WRZ-TTJ0000-2	x		x	x			x		BUTTONS, CONFIG
RH sensors	Potentiometer dial	WRZ-THP0000-0	x	x					x		DIAL, W/C
		WRZ-THN0000-0	x	x					x		NO DIAL
	No dial	WRZ-THN0000-2	x	x					x		NO DIAL
	Encoder dial	WRZ-THB0000-0	x	x	x	x		x	x		DIAL, CONFIG
	Buttons	WRZ-THJ0000-0	x	x	x	x		x	x		BUTTONS, CONFIG
		WRZ-THJ0000-2	x	x	x	x		x	x		BUTTONS, CONFIG
Remote probe sensors	No dial	WRZ-STR0000-0	x		x	x			x		NO DIAL
		WRZ-STR0000-2	x		x	x			x		NO DIAL
		WRZ-RMT10K-0	x		x	x			x		NO DIAL
		WRZ-RMT10K-2	x		x	x			x		NO DIAL
Occupancy sensors	No dial	WRZ-MNN0100-0							x	x	NO DIAL
		WRZ-MTN0100-0	x						x	x	NO DIAL
		WRZ-MHN0100-0	x	x					x	x	NO DIAL
		WRZ-MHN0100-2	x	x					x	x	NO DIAL
	Encoder dial	WRZ-MTB0100-0	x		x	x			x	x	DIAL, CONFIG
	Buttons	WRZ-MTJ0100-0	x	x	x	x		x	x	x	DIAL, CONFIG
		WRZ-MTJ0100-2	x	x	x	x		x	x	x	DIAL, CONFIG

1   Warmer/cooler temperature offset (W/C), single-value in 55°F to 85°F (13°C to 29°C) range (SCALED), system-configured - available on display models only (CONFIG), temperature setpoint adjustment buttons (BUTTONS), no setpoint dial (NO DIAL)

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Technical specifications

Table 4: WRZ Series Wireless Room Sensors technical specifications

Specification	Description
Power requirements	3 VDC supplied by two 1.5 VDC AA alkaline batteries, included with sensor; battery life: 48 months, 36 months minimum)
Addressing	DIP switches; field-adjustable MS/TP address, network number, and zone address
Ambient conditions	**Operating:** 32°F to 122°F (0°C to 50°C), 5% RH to 95% RH, noncondensing
	Storage: -40°F to 160°F (-40°C to 71°C), 5% RH to 95% RH, noncondensing
Wireless band	Direct-Sequence, Spread-Spectrum, 2.4 GHz ISM band
Transmission power	10 mW maximum
Transmission range	100 ft (30 m) maximum line of sight; 50 ft (15 m) optimal
Transmissions	**Temperature:** Every 60 seconds, ±20 seconds
	Humidity: Every 2 minutes, or 1 minute intervals if temperature or humidity changes
Temperature system accuracy, temperature only models, and temperature and humidity models	1.0°F/0.6°C over the range of 55°F to 85°F (13°C to 29°C), 1.5°F/0.9°C over a range of 32°F to 55°F (0°C to 13°C) and 85°F to 110°F (29°C to 43°C)
Temperature sensor type, temperature only models, and temperature and humidity models	Internal 10k ohm Negative Temperature Coefficient (NTC) thermistor
Humidity calibrated range, temperature and humidity models	10% RH to 90% RH at 73°F (23°C)
Humidity accuracy, temperature and humidity models	±3% RH across the range of 20% RH to 80% RH, ±6% RH across the range of 10% RH to 20% RH and 80% RH to 90% RH, within the temperature range of 55°F to 85°F (13°C to 29°C)
PIR Occupancy Sensor motion detection, models with PIR Occupancy Sensor	Minimum 94 angular degrees up to a distance of 15 ft (4.6 m); based on a clear line of sight
Materials	NEMA 1 white plastic housing
Mounting	Screw mount or double-sided adhesive foam tape mount; double-sided adhesive foam tape included
Compliance	**United States:** Transmission complies with FCC Part 15.247 regulations for low power unlicensed transmitters. Transmitter FCC identification: TFB-MATRIXL or OEJ-WRZRADIO.
	Canada: Industry Canada IC: 5969A-MATRIXL or 279A-WRZRADIO
CE	**Europe:** CE Mark – Johnson Controls declares that this product is in compliance with the essential requirements and other relevant provisions of the RED, EMD, LVD, and RoHS Directives.
	Japan: Transmission complies with Article 38-24 Paragraph 1 of the Radio Law. Certification number: ATCB012834
	Australia and New Zealand: RCM mark, Australia/NZ emissions compliant
Shipping weight	0.3 lb (0.14 kg)

The performance specifications are nominal and conform to acceptable industry standard. For application at conditions beyond these specifications, consult the local Johnson Controls office. Johnson Controls shall not be liable for damages resulting from misapplication or misuse of its products.

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Product warranty

This product is covered by a limited warranty, details of which can be found at www.johnsoncontrols.com/buildingswarranty.

Patents

Patents: https://jcipat.com

Software terms

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